

ABSTRACT

A high pressure shaft seal (10A) for use in a refrigerating machine wherein carbon dioxide is used as a refrigerant in lieu of "Freon". The seal has a sealing lip (24A) made of a non-elastomeric polymer material such as nylon that has a small gas permeability coefficient, a region of the sealing lip brought into contact with a shaft to be sealed being lined with a low friction lining (26A) of polytetrafluoroethylene. The gas barrier sealing lip (24A) of nylon serves to effectively block permeation of carbon dioxide gas under an extremely high pressure of from about 4 MPa to about 12 MPa. The sealing lip (24A) of nylon has a relatively high rigidity but is nevertheless able to resiliently undergo elastic deformation when such a high pressure is applied, to thereby resiliently follow any shaft run-out to exhibit sufficient dynamic and static sealing functions.

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